

## Complication of Spice Use in a Deployed Combat Setting—Seizure while on Duty

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Synthetic cannabinoids, also known as Spice, have become increasingly popular since they went on the public market in 2004.<sup>1</sup> Due to the inability to detect Spice on routine urine drug screens, easy accessibility online and in local stores, and the “legal high” it provides, it is appealing to military communities.<sup>2</sup> In addition, soldiers and sailors were among the earliest users of Spice in the United States.<sup>2</sup> Reports describing the adverse reactions, clinical effects, and complications of Spice are limited. The normal effects of Spice are generally similar to the euphoria provided by cannabis.<sup>3</sup> Commonly reported adverse reactions to Spice include paranoia, scleral injection, xerostomia, visual persecutory hallucinations, sedation, and agitation.<sup>1</sup> We present a case of a deployed soldier who had a seizure after smoking Spice while on duty, and just after working with heavy machinery.

A 25-year-old deployed active duty male presented to the battalion aide station (BAS) after a witnessed seizure in his sleeping quarters. He was found in bed vomiting, with tonic-clonic motor activity. His roommates brought him to the ED sedated and confused in a post-ictal state. The medics administered diazepam 10mg intramuscularly and his seizure ceased. He was amnesic to the epileptic event and recalled waking up in the BAS. He admitted to smoking Spice three hours prior to returning to his room, while on duty driving his armored vehicle. His history was corroborated by his roommates and documentation of the drug’s packaging. He denied head trauma, recent blast injury, or concussion. He denied flu-like symptoms, headache, or neck stiffness. He had no other medical problems and no history of seizures previously. His home med-

ications included diphenhydramine and acetaminophen as needed, which he had not used in 48 hours. He admitted to smoking Spice and one pack of cigarettes per day. He denied other substance abuse including huffing hydrocarbons, drinking alcohol, or purchasing tablets from the local community or internet. Vital signs on presentation were blood pressure 114/69 mm Hg, pulse rate 107 beats per minute, respiratory rate 14 respirations per minute, temperature 97.4 Fahrenheit, and oxygen saturation 98%. He was alert and oriented. He had a 3 mm abrasion on the right forehead. He had normal, reactive pupils. He was ambulatory and had no focal deficits, tremor, clonus, or rigidity. He was transported by helicopter to Bagram Air Base where his brain computed tomogram was interpreted as normal. His electrocardiogram was interpreted as normal sinus rhythm with a normal QRS width. The absence of an R wave in lead aVR suggested no sodium channel blockade. His urine toxicology screen was negative for amphetamine, cocaine, opioid, cannabis, phencyclidine, benzodiazepine, barbiturate, and propoxyphene. Serum acetaminophen, ethanol, and salicylate were undetectable. His glucose was 116 mg/dL. Electrolytes, liver and renal functions were normal. Serum white blood count was elevated at 16,000 cells/ $\mu$ L. He was observed for one day before transfer back to the United States (U.S.) for evaluation of his substance abuse and seizure. His workup in the U.S. included an electroencephalogram with normal results and no additional seizures.

There have been case reports that reported seizure as an effect of Spice intoxication.<sup>4</sup> In addition, preliminary studies have shown that cannabis can lower seizure threshold in humans.<sup>5</sup> It is unknown if Spice or other synthetic cannabinoids have the same potential epileptic effect as cannabis. One report detailed a potential withdrawal syndrome after 8 months of Spice use; however, there are no reports of Spice withdrawal as a cause for seizures.<sup>6</sup> Our patient likely had a seizure from intoxication of Spice, not

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drug withdrawal. In addition, it is possible that the patient's seizure was coincidental to Spice use and not from intoxication.

Currently, there are no case reports detailing the Spice use in a deployed setting. In our case, the patient had a seizure just after smoking Spice and during a combat mission. In addition, in our case the patient had a seizure after Spice use which has rarely been reported, and not previously reported in a deployed setting. Despite firm regulations established by all branches of the United States military prohibiting the use of Spice and other psychoactive substances,<sup>1</sup> our case demonstrates its popularity and the danger it poses to our servicemen and women. Our patient was on Spice while working with heavy machinery. Had the seizure occurred during this time, it could have had dire effects on him and the mission. Finally, our case further emphasizes the wide range of effects reported with Spice, and its potential to cause serious clinical effects.

### *Declaration of Interest*

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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